1. E (Purine ring-general structure)
2. B
3. B (Derived exclusively from thymidine)
4. A
5. D
6. C
7. B (Follow Chargaff’s Rule…..% thymine=2000/6000 x 100=33.3%=% Adenine, so A+T=66.6%, which means that G+C=33.4%, and G=C so % cytosine=33.4/2=16.7%)
8. C
9. A (In the dispersive and semiconservative models, only one band is produced in the sedimentation equilibrium centrifugation. The conservative model is eliminated because two bands are expected after one round of replication.)
10. E (The primer is an RNA molecule)
11. D
12. A (It’s a hexamer)
13. D (Choice A is false…Rifampicin binds to the beta subunit)
14. E
15. D
16. E
17. H
18. C
19. D
20. A
21. C
22. D
23. A
24. D
25. A (Auto recessive…sister affected, parents normal, so parents must be Aa, son unaffected so he can’t be aa…2/3 chance he’s Aa and 1/3 chance he’s AA).
26. B (2/3 chance that son is carrier, and same goes for his wife. Mating between two Aa yields a ¼ chance of aa offspring, so final probability is 2/3 x 2/3 x 1/4=4/36=1/9).
27. B
28. C
29. E
30. B (q=0.1, so p=0.9, and 2pq=2(0.1)(0.9)=0.18=18%)
31. E (p2=1-0.51=0.49 so p=0.7, q=0.3 and p2+2pq=0.492+2(0.7)(0.3)=0.91)
32. C (Coefficient of relationship is (1/2)4=1/16, so coefficient of inbreeding is (1/2)(1/16)=1/32)
33. C ((55+95+105+45)/1000=0.3)
34. A ( Pr (AaBb)=Pr(AB/ab)+Pr(Ab/aB)=Pr(AB dad)xPr(ab mom)+Pr(Ab mom)xPr(ab dad)+Pr(Ab dad)xPr(aB mom)+Pr(Ab mom)xPr(aB dad)=(0.05)(0.5)+(0.5)(0.05)+(0.45)(0)+(0)(0.45)=0.05)
35. D
36. E
37. B